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# THESIS

TOTAL QUALITY LEADERSHIP AS IT APPLIES
TO THE SURFACE NAVY

by

Ernani Morena Lacson
and
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December 1990

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# Total Quality Leadership as it Applies to the Surface Navy

by

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## ABSTRACT

The implementation of Total Quality Leadership (TQL) into the Surface Warfare Navy requires specific leadership training for the entire community. A training needs analysis was conducted to examine these training requirements for Surface Warfare Officers. First, personnel who are already using TQL at different Navy facilities were interviewed to determine the areas where TQL principles are applicable in the Surface Navy. Next, the Officer Survey Instrument (OSI) data base provided the information to determine the leadership competencies that are currently being used by Surface Warfare Officers. Finally, current Navy leadership training was examined to see if these competencies were being incorporated into the officer training program. Existing Surface Warfare Officer leadership training addresses many of the prescribed management principles of TQL, and fleet officers demonstrate many characteristics in congruence with the requirements of this new management style. However, more emphasis is required in some areas. The strong support provided by the Chief of Naval Operations coupled with a systematic and continuous training program will guide the Navy through a smooth transition into Total Quality Leadership.

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## GLOSSARY

## TQL ORGANIZATIONAL STRUCTURE

**Executive Steering Committee (ESC)**

The ESC is represented by the highest level of management. In the Surface Navy, ESC membership probably would include the commanding officer, the executive officer and all the department heads.

The ESC formulates the organization's strategic goals toward its quality improvement efforts. To define these goals, ESC must identify products and/or services requirements from all its customers. These goals are ranked for quality improvement. Of course there are costs associated in the quality improvement efforts. ESC is expected to provide all the necessary support and resources.

**Quality Management Boards (QMB)**

QMB is a permanent cross-functional team made up of top and mid-level managers who are jointly responsible for a specific product or service. The membership structure is intended to encourage cooperation facilitate communication by providing vertical and horizontal links throughout the organization.

In the surface navy, a QMB team membership would include a department head, division officers, chief petty officers and the leading petty officers.

QMB determines the areas in the organization that impact its goals and work directly with the ESC in defining indicators of quality improvement and costs savings.

QMB organizes the Process Action Teams (PAT's) who deal directly with the processes involved. The PAT's provide the QMB information which the latter can use in studying the process. QMB finds common causes of variation that lead to poor quality and makes the changes necessary to improve performance. QMB tracks the process for any improvement caused by the changes that were made on the process.

**Process Action Team (PAT)**

PAT is comprised of the workers involved in the process being investigated by the QMB. PAT members are selected by the QMB based on their knowledge and expertise in shop operations.

# I. INTRODUCTION

## A. BACKGROUND

### 1. A New Industrial Revolution

The American business complex is undergoing a new industrial revolution. This revolution was forced on American industries by the incursion of foreign industries, led by the Japanese, into the American market place. With it came the increasing demand for foreign products by the American consumers. Their products possess better quality and are sold at a competitive price. In the automobile industry, for example, Hondas out sold Pintos and Vegas lost out to the Datsuns. [Ref. 1:pp. 34-37]

The consumers demanded and received quality merchandise at a competitive price. But how was Japan able to produce higher quality goods at lower prices? Columbia Broadcasting System (CBS) wanted to know why this situation existed in its recording alliance with Sony Corporation of Japar. Sony's records were produced with the identical master disks, record presses and plastic blanks as those records produced stateside by CBS. However, Sony consistently produced higher quality records at a lower price. The only difference between the two companies was the management system employed by Sony Corporation called Total Quality Management (TQM). [Ref. 2:p. 8]

## 2. Department of Defense and Total Quality Leadership

The Department of Defense (DoD) has joined this new industrial revolution. The defense budget as a percentage of the Gross National Product has shrunk since the early Reagan years. With less resources available the DoD has become increasingly aware of the need to receive or produce goods at a low price without sacrificing quality. The first inroads TQM had in the DoD came in as a result of a memorandum on DoD's posture on quality issued by then Secretary of Defense, Frank Carlucci, on March 30, 1988. The memorandum called for a "focus on quality" as a key in "achieving higher levels of performance" throughout the DoD by implementing TQM. [Ref. 3]

The original thrust of the TQM implementation was primarily in the areas of acquisition and engineering. Its initial success had been tremendous, specifically in the Naval Aviation Depots (NADEPs) and Naval Supply Centers. As a direct result of TQM, the NADEP at Naval Air Station North Island, California saved $673,000 in the F-14 overhaul process in one year alone. [Ref. 4:p. 32] Money savings such as this caused TQM to gain wide acceptance within the DoD. Its application in the DoD expanded to the areas of naval aviator training, medicine, ship repair facilities, general administration and human resources management. Recently, the Chief of Naval Operations extended the use of TQM, which he renamed

Total Quality Leadership (TQL)[1] for the Navy, to include operational assets.

## B. OBJECTIVES AND RESEARCH QUESTIONS

### 1. The Objective

This thesis investigates the leadership training requirements associated with the implementation of Total Quality Leadership (TQL) into the Surface Warfare Officer (SWO) training pipeline. The objective is to identify the leadership competencies supportive of the TQL concept by conducting a three-pronged training needs analysis.

In order to establish how TQL techniques apply in the Surface Navy, the Officer Survey Instrument (OSI) data base will be analyzed to identify the current leadership and management competencies being exercised in the fleet today. Cognizant naval TQL authorities from commands currently applying the TQL concept will be interviewed to identify their areas of successes and failures concerning both TQL implementation and operations. Finally, the current Leadership and Management Education Training (LMET)[2] courses used in the SWO school command will be examined to determine if the needed TQL leadership competencies are currently being taught.

---

[1]Total Quality Management (TQM) and Total Quality Leadership (TQL) will be used interchangeably throughout this thesis.

[2]The Navy is currently in the process of changing the name of its LMET courses to Navy Leader (NAVLEAD).

### 2. The Research Questions

The following specific research questions are addressed:

a. Primary research question: Does the leadership training currently taught to surface warfare officers give the leadership knowledge necessary to support the implementation of TQL in the Department of Defense (DoD)?

b. Subsidiary questions:

(1) Which of the TQL principles can be applied to the Surface Navy?

(2) What leadership competencies supportive to the TQL principles are currently being practiced in the fleet?

(3) To what extent are the leadership courses taught to SWOs in congruence with the leadership competency requirements of TQL?

## C. SCOPE, LIMITATIONS AND ASSUMPTIONS

To facilitate a manageable thesis, the following scope, limitations and assumptions are noted:

### 1. Scope

This thesis addresses TQL as it applies to the surface warfare community. The basis of this thesis is derived from data obtained from the OSI, interviews with cognizant TQL Navy personnel, review of pertinent TQL literature, and examination of current SWO leadership training courses.

This thesis does not attempt to justify the need to use TQL as a management tool. We believe that the Navy as a

part of DoD has already decided to apply the TQL concept service wide. We do not attempt to prove or disprove the merits of TQL, this has been done in both the civilian and the military work place.

### 2. Limitations

This thesis is limited to the study of the TQM leadership competencies that are applicable to the Surface Navy. The data from the OSI survey is limited to 266 SWOs responses. The OSI was administered to 10,000 naval officers, from all Navy communities, by the Navy Occupational Data Analysis Center (NODAC) in July of 1988. Our work also includes data extracted from interviews with over twenty cognizant naval TQL authorities. Additional information was obtained from current LMET course and Command Excellence outlines. This thesis extracts and combines leadership competencies related to the TQL concept that we believe will work in the Surface Navy.

### 3. Assumptions

This thesis assumes that the reader possesses some working knowledge of the TQM principles (See Glossary for TQL Organizational Structure). Furthermore, it is assumed that the Navy will seriously consider utilizing the existing Navy leadership training courses as a vehicle to train its personnel on TQM principles.

# II. LITERATURE REVIEW

## A. EDUCATIONAL NEEDS ANALYSIS

The Surface Navy has stated the implementation of TQL as a goal. To accomplish this goal, a plan must be developed to train its officers and enlisted ranks in the competencies of leadership used in this method. The Instructional Systems Design (ISD) is the required method for developing an instructional program in the DoD. [Ref. 5]

ISD is a systems-analysis approach which is used in developing new programs of instruction. [Ref. 6] The goals of ISD are to "make the training both job relevant and cost-effective and efficient." To accomplish these goals four procedures are followed. First, teams of subject knowledge experts are formed to provide an information and expertise base. Next, complex tasks are broken down to less complicated forms from which models or simplified descriptions are built. Then systematic solutions to the tasks detailed earlier are developed by the expert teams. Finally, operational tests are used as a continual feedback loop to determine any further modification requirements to the developed training. [Ref. 7:pp. 3-7]

As a part of ISD, a training needs analysis is required to form a basis for this training plan. Many organizations fail to properly train their personnel since they are often "more interested in conducting the training program than in

assessing the needs of their organization". [Ref. 8:p. 17] Therefore, we feel a training needs assessment is required to ensure that good, useful training is developed before the Navy embarks on TQL training.

To meet this requirement we use the three-pronged educational needs analysis shown in Figure 1 below. This needs

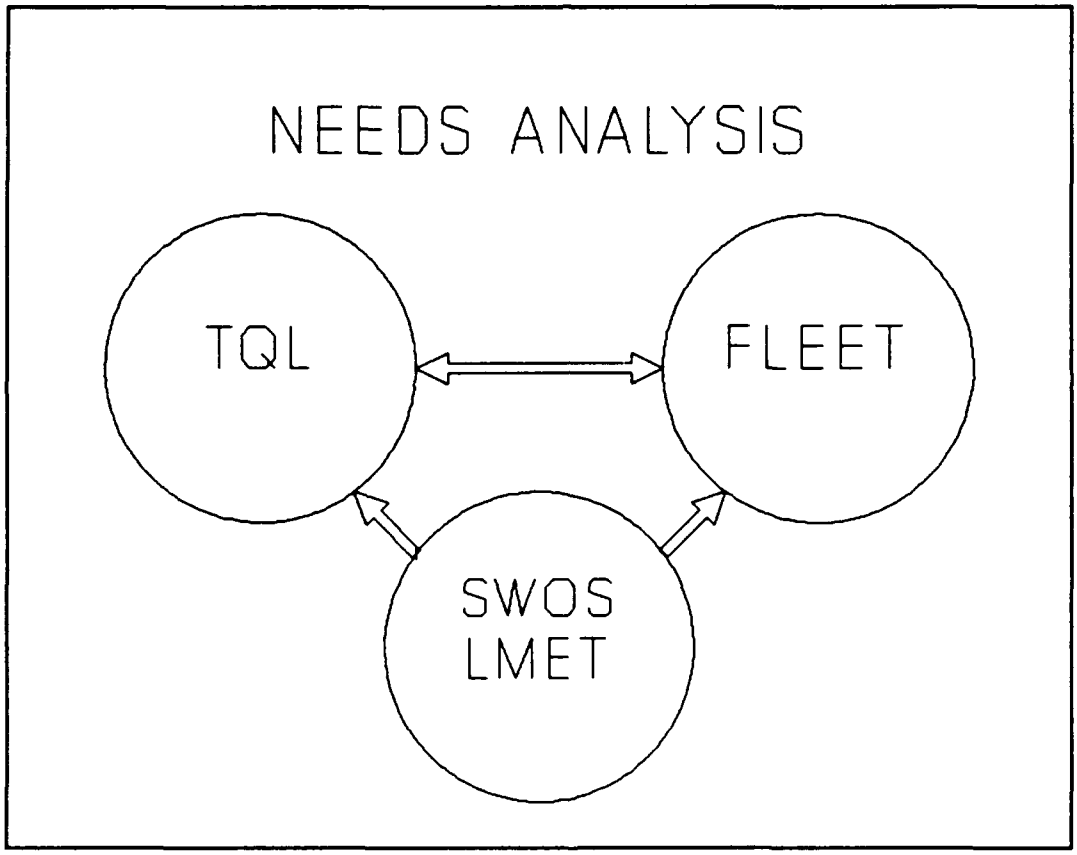


**Figure 1**
**Three-Pronged Educational Needs Analysis**

analysis is based on the Paul M. Muchinsky model for a training needs analysis. [Ref. 9:pp. 249-259]

The needs analysis determines what TQL principles are applicable to the Surface Navy. The fleet is examined to determine what TQL principles, if any, are already present. Finally, SWO leadership training is examined to see if TQL competencies are currently being taught. This triad is comparable with Muchinsky's three-step process that involves organization, operations and person analysis. Once differences between the TQL requirements and the current practices of the fleet are identified, the SWO training pipeline can be modified to eliminate this training deficiency.

## B. LMET

LMET is the Navy's method to introduce managerial and leadership skills to personnel at both the officer (Division Officer and Department Heads) and enlisted levels. LMET's roots can be traced back to 1970 when the Chief of Naval Operations (CNO) ADM Elmo Zumwalt ordered the development of the Human Goals Program (HGP). HGP consisted of leadership training, race relations, alcohol counseling and overseas diplomacy. This leadership course went through several name and substance changes until 1975. In that year, McBer and Company of Boston (McBer) were contracted to improve the, then named, Human Resources Management Program. [Ref. 10:pp. 30-31]

McBer conducted two research studies sponsored by the Navy, which presently form the backbone of leadership training courses taught throughout the Navy. McBer's first research study involved the analysis of the individual performance of supervisory personnel. The analysis revealed leadership competencies that were common to all outstanding supervisory personnel and missing from average supervisory personnel. These leadership competencies have been distilled down to ten competencies at the Department Head School and thirteen competencies at Division Officer Course. [Ref. 11:pp. 36-51]

McBer's second study looked at superior performing commands to identify performance characteristics that distinguish outstanding commands from average commands. From their results, McBer built a command effectiveness model that consists of thirteen components divided into three major areas as shown in Figure 2 below. [Ref. 12:pp. A-1 - A-4] McBer is still under contract to conduct research to keep LMET abreast of leadership developments in the Navy. [Ref. 13:p. 66]

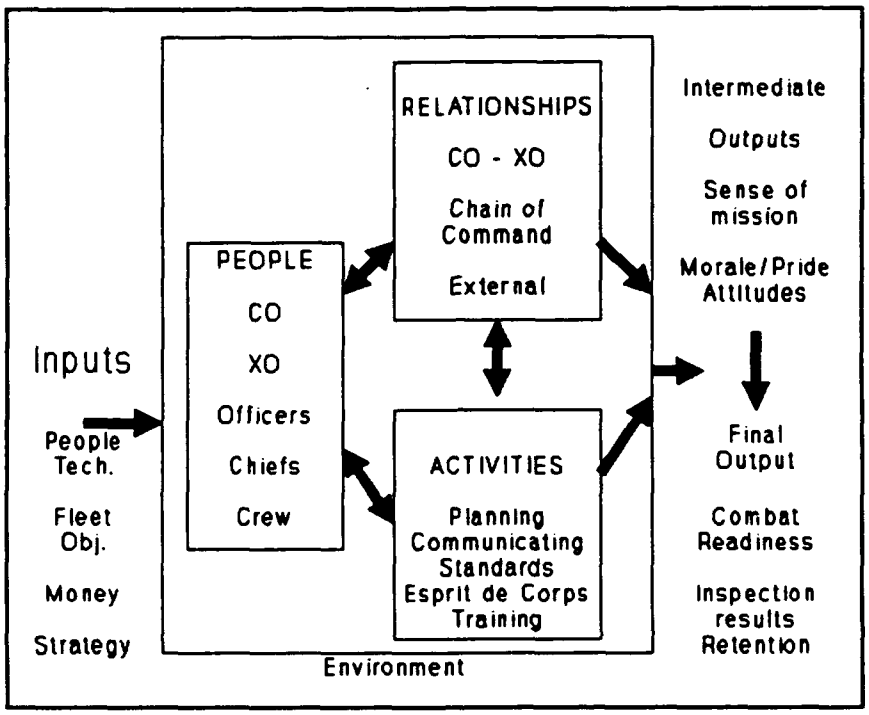


**Figure 2**
**COMMAND EFFECTIVENESS MODEL**

**Source: Command Excellence: What it takes to Be the Best!**

Department Head School is a six-month school attended by all prospective department heads in the Surface Navy as a part of their training pipeline. Students at Department Head school receive the LMET course as part of the school's administrative curriculum. This course teaches the ten competencies identified in McBer's first study that are required for a new department head to be an effective leader

and a good manager. The LMET course also instructs the students in the findings of McBer's second study, which produced the command effectiveness model. [Ref. 14:p. i]

The prospective division officers receive their LMET course after completing their basic division officer training in the areas of seamanship, engineering, administration, and combat systems. LMET, a part of this basic training, is designed to give the newly commissioned ensign an idea of what leadership is all about before the ensign reports to the first shipboard assignment. This course is also based on the results of McBer's research into what competencies make good leaders.

## C. COMMAND EXCELLENCE

The Command Excellence Program is also based on Mcber's second study. That study looked at operational units from the air, surface, and submarine warfare communities to identify characteristics that make outstanding commands different from average performing commands. As a part of this study, outstanding ships were identified by end users, that is Squadron Commanders or higher. These ships were compared with each other to identify common attributes that made them highly successful. [Ref. 15:pp. 3-8] Command Excellence forms the basis for the leadership training of the students at the Prospective Executive Officer (PXO) and Prospective Commanding Officer (PCO) schools.

## D. TOTAL QUALITY LEADERSHIP

To gain an insight into TQL a basic understanding of its meaning is required. TQM is the civilian management tool upon which TQL gains its foundation. TQM represents a paradigm shift in how corporations manage their businesses. [Ref. 16:p. iii]

As the name suggests, quality is the central theme of TQM. The first effort in quality control came in the 1930's with the work of Dr. Walter A. Shewhart, a statistician from Bell Telephone Laboratories in New York. Dr. Shewhart believed that statistical analysis could be used in a manufacturing environment to gain a higher level of quality. [Ref. 17:pp. 6-8] The opposing and more popular belief at the time was based on the time and motion studies conducted by Dr. Frederick Taylor. Dr. Taylor found that efficiency, and therefore quality, could be improved by a reward system for production effort. [Ref. 18:p. 9] Highly productive workers were studied to provide the patterns for other workers to follow. Pay incentives for higher production were used. Taylor's theory appeared to be well founded but the emphasis on the production volume did little to improve quality. It did, however, cause great employee stress as was indicated by a severe turnover ratio. [Ref. 19:pp. 14-15] The constant training of new employees certainly did not improve product quality.

Dr. Shewhart, on the other hand, believed that through the use of statistical control the product quality would go up and the production costs would go down. By determining the product's quality via statistical methods he could determine if the product's variance from acceptable standards was due to the design limits of the equipment, or if the variation was a result of the other factors in the process such as raw materials or operator training. Additionally, a worker could inspect his own output and discard unsatisfactory goods before it became a final product. [Ref. 20:pp. 6-7] An example would be in the manufacturing process of a bearing that requires a specific size diameter as a tolerance. If a bearing size was out of tolerance, statistical analysis might indicate the possibility of correcting the problem with a simple machine adjustment by the worker. Or, the analysis could also show that no matter how much adjusting was done to the machine, the bearing would never be within acceptable limits because the problem was with the machine itself. As a result, any adjustment by the worker to the machine could cause size variations to otherwise perfectly specified bearings. Regardless, application of statistical analysis could determine the tolerances for each case.

The thrust of Dr. Shewhart's work was his conclusion that production numbers should be replaced with statistical control of quality. Better products, though fewer in number, would be more profitable.

During World War II, the suppliers of war goods in the United States resorted to statistical control to provide the manufacturing basis for the defense of our country. Dr. F. Edwards Deming, a co-worker of Dr. Shewhart's, had been instrumental in developing war time production methods used by American industries. His efforts in training wartime industrial workers in the use of statistical analysis for quality control resulted in high quality war platforms, weaponry and ammunition. [Ref. 21:pp. 7-8]

After the war, American industries had no competition in the global market. European and Japanese industrial bases had been reduced to rubble during World War II. The Russians continued to struggle with their socialistic, agricultural economy. Statistical control methods that resulted in high quality goods and services during the war were replaced with the pre-war manufacturing methods. High production output replaced quality as management's objective. Lives were no longer at risk due to inferior quality of finished goods. Because competition was limited among American businesses, consumers had nowhere else to turn for their goods if they were not satisfied with their product's quality. If the product had to be returned to the manufacturer for rework or exchange, the company just absorbed the loss. The sheer number of products sold would cover such loses. [Ref. 22:p. 8]

In an attempt to gain a share of the world's market the government of Japan requested assistance from the United States. Dr. Deming went to Japan and showed the Japanese how the United States had achieved great results during the war effort with statistical control methods. Dr. Deming opened the eyes of the Japanese. They embraced his ideas and accepted his 14 principles of management shown in Table 1 below. [Ref. 23:pp. 10-21]

**TABLE 1**

**DEMING'S 14 MANAGEMENT PRINCIPLES**

1. Create constancy of purpose toward improvement of product and service, with the aim to become competitive and to stay in business, and to provide jobs.

2. Adopt the new philosophy. We are in a new economic age. Western management must awaken to the challenge, must learn their responsibilities, and take on leadership for change.

3. Cease dependence on inspections to achieve quality. Eliminate the need for inspection on a mass basis by building quality into the product in the first place.

4. End the practice of awarding business on the basis of price tag. Instead, minimize total cost. Move toward a single supplier for any one item, on a long-term relationship of loyalty and trust.

**(TABLE 1 (CONTINUED)**

5. Improve constantly and forever the system, of production and services, to improve quality and productivity, and thus constantly decrease costs.

6. Institute training of the job.

7. Institute leadership (see point 12). The aim of leadership should be to help people and machines and gadgets to do a better job. Supervision of management is in need of overhaul, as well as supervision of workers.

8. Drive out fear, so that everybody may work more effectively for the company.

9. Break down barriers between departments. People in research, design, sales, and production must work as a team, to foresee problems of production and in use that may be encountered with the product or service.

10. Eliminate slogans, exhortations, and targets for the work force, asking for zero defects and new levels of productivity. Such exhortations only create adversarial relationships, as a bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.

11a. Eliminate work standards (quotas) on the factory floor. Substitute leadership.

11b. Eliminate management by objectives. Eliminate management by number numerical goals. Substitute leadership.

**TABLE 1 (CONTINUED)**

12a. Remove barriers that rob the hourly worker of his right to pride of workmanship. The responsibility of supervisors must be changed from sheer numbers to quality.

12b. Remove barriers that rob people in management and in engineering of their right to pride of workmanship. This means, inter alia, abolishment of annual or merit rating and management by objective.

13. Institute a vigorous program of education and self-improvement.

14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

---

Source: Houston, A and Dockstader, S.L. "A Total Quality Management Process Improvement Model", Navy Personnel Research and Development Center, San Diego, CA, 1988.

The Japanese have re-entered the world market using TQM with astounding results. They have dominated the car industry, for example, by providing high quality goods at competitive prices. Ironically, the United States industries are embracing the newfound Japanese management style -- TQM, an idea pioneered by an American. Many American manufacturers are using TQM methods to reestablish themselves as makers of quality merchandise. General Motors recently won The

Baldridge Award for Excellence[3] for the 1990 Cadillac. The Navy, as a part of the DoD, is relying more and more on TQL to better the quality of its output in many new areas such as aviator training, aircraft maintenance, acquisition, shipyard facilities, and ship intermediate maintenance authorities (SIMAs).

[3]The Baldridge Award is given annually to one American company and is based on customer satisfaction.

# III. RESEARCH METHODOLOGY

## A. PRIMARY RESEARCH QUESTION

**Does the leadership training currently taught to SWOs give the leadership knowledge necessary to support the implementation of TQL in DoD?**

To answer our primary research question, a three-pronged educational needs analysis was conducted. To conduct this analysis we answered three subsidiary research questions. First, a set of criteria was devised through interviews and a review of pertinent literature, to establish what leadership competencies are used in the TQL system and which, if any, are applicable to the Surface Navy. Next, officer inputs were examined in the statistical analysis of the OSI data to see how their leadership competencies compare to TQL competencies. Third, a comparison shows what competencies the officers are lacking to be in compliance with TQL. The competencies were compared with current LMET instruction to see what is missing in the training process.

## B. SUBSIDIARY QUESTIONS

### 1. Which of the TQL principles can be applied to the surface Navy?

In order to determine which TQL principles can be applied to the surface Navy, telephone interviews were conducted with cognizant personnel assigned to naval

facilities where the TQL system was in use. We looked to see where TQL was applicable and where it failed to work at these commands. The authors conducted telephone interviews with twenty commands including Navy Personnel Research and Development Center (NPRDC), Naval Supply Center (NSC), Norfolk, Virginia, and Fleet Accounting and Disbursing Center, Pacific (FADCPAC). NPRDC was interviewed primarily due to their history of extensive research in TQL. Currently, NPRDC conducts training throughout the Navy in TQL with 15 courses. [Ref. 24] Additionally, NPRDC has conducted research in training for the Surface Navy in the past. Their insight provided valuable information as to how TQL principles will work in the Surface Navy. NSC Norfolk and FADCPAC were interviewed for both their close workings with the Surface Navy and their familiarity with the TQL process. Again, this valuable insight to both the surface community and TQL, provides a unique information base not found anywhere else in the Navy. Other commands were selected based on referrals from fellow Naval Postgraduate School students, professors and guest speakers. A complete list of commands where personnel were interviewed can be found in Appendix A. These interviews resulted in obtaining first hand information on TQM implementation and how well TQM has worked in a military environment. Commands interviewed had been practicing TQL between six months and five years.

A list of open-ended questions served as the guideline for the initial interviews (See Appendix B). As each interviewee would lead into different areas in responding, the authors would add questions in the process. Each respondent was asked to critique the questions to allow the authors more insight to TQM process.

The length of the interviews ranged from 15 to 45 minutes. Doing this oral survey allowed the authors to carefully ensure the interviewee understood the questions as they pertained to this thesis. The authors felt that the oral survey provided more complete data than a written survey since respondents were not required to write out long informative answers. Of course, answers were also more general than those provided by a more rigid, written survey. A content analysis of the responses was conducted to group the data into general topic areas that were easily differentiated.

The literature review of TQL materials provided us with information on leadership competencies necessary to facilitate the implementation of TQL in the Navy.

**2. What leadership competencies supportive to the TQL principles are currently being practiced in the fleet?**

In order to determine what leadership competencies supportive to TQL principles are currently being practiced in the fleet, data from the OSI were analyzed. The OSI was administered by NODAC in July 1988 to 10,000 naval personnel from various naval communities. A major portion of the survey

instrument consisted of questions (shown in Appendix C) concerning leadership, management and professional responsibilities as they apply to the officers' current job.

There were a total of 7,232 useable responses obtained from this survey. Of these, 266 SWOs from the rank of Ensign to Captain, who have served or are serving as division officers or department heads, were extracted for analysis. Not all of the survey questions were analyzed in this thesis. Only questions on leadership characteristics and management responsibilities that we felt are related to TQL functions were selected and analyzed.

The Statistical Analysis System (SAS) software of the Naval Postgraduate School computer mainframe (IBM 370/3033) was used for data analysis. First, SAS procedure PROC MEANS was employed to determine the percentage of time surface warfare officers spend in each of the technical, management and leadership functions. A summation of the three percentages had to equal one hundred percent. This analysis indicated how much time is spent by naval officers at sea in TQL related activities.

SAS procedure PROC FREQ was used to analyze the responses to two groups of questions. The first group of questions dealt with leadership, while the second group dealt with management and professional responsibilities. The leadership analysis determined how much interaction transpires among SWOs and the importance of these interactions.

Additionally, the importance of individual leadership competencies was established. Various management and professional responsibilities were analyzed to discover how much focus respondents place in these areas. Before conducting this statistical analysis, the subjects were divided into two classifications, junior officers (O1 to O3) and field grade officers (O4 to O6). This classification was performed to determine if there were differences in responses between the two groups.

Responses to the question of how the subjects spent their time in management or professional responsibilities were based on an ordinal scale of 9 ranging as follows:

0 DOES NOT APPLY

1 RARELY, A VERY MINOR PART OF THE JOB

2 ******

3 OCCASIONALLY A MINOR PART OF THE JOB

4 ******

5 ROUTINELY A PART OF THE JOB

6 ******

7 A SIGNIFICANT PART OF THE JOB

8 ******

9 A MAJOR FOCUS OF THE JOB

For ease of analysis, responses were grouped into three categories. Responses 0 through 3 were categorized

RARELY A PART OF THE JOB. Responses 4 through 6 were categorized ROUTINELY A PART OF THE JOB. Responses 7 through 9 were categorized A MAJOR FOCUS OF THE JOB. The results of this analysis will demonstrate what competencies supportive of TQL are currently practiced in the fleet by SWOs in the management and professional functions.

Responses indicating perceived importance of specific leadership competencies in the OSI were based on an ordinal scale of 7 ranging as follows:

0 = DOES NOT APPLY

1 = UNIMPORTANT

2 = SLIGHTLY IMPORTANT

3 = SOMEWHAT IMPORTANT

4 = MODERATELY IMPORTANT

5 = QUITE IMPORTANT

6 = HIGHLY IMPORTANT

7 = EXTREMELY IMPORTANT

The responses were grouped in three separate clusters with 0, 1 and 2 representing unimportant, 3 and 4 representing important, and 5, 6 and 7 representing very important. This grouping attempted to extract the differences in the perceived importance of the leadership competencies between the two pay grades. These results will demonstrate what competencies

supportive of TQL are currently practiced in the fleet by SWOs.

Responses indicating frequency of SWO interactions with his/her superiors, peers and subordinates were based on an ordinal scale of 7 ranging as follows:

0 = DOES NOT APPLY

1 = NEVER

2 = ALMOST NEVER

3 = OCCASIONALLY

4 = ROUTINELY

5 = FREQUENTLY

6 = ALMOST ALWAYS

7 = ALWAYS

The responses were grouped in three separate clusters with 0, 1 and 2 representing ALMOST NEVER; 3 and 4 representing ROUTINELY; and 5, 6 and 7 representing ALMOST ALWAYS. Organizational interaction is an important element of TQL. The result will identify any deficiencies that exist in this area.

**3. To what extent are the leadership courses taught to SWOs in congruence with the leadership competencies requirements of TQL?**

In order to determine the extent to which the leadership training currently taught to SWOs is in congruence

with the leadership requirements of TQL, an extensive literature review was conducted. Military and civilian literature were studied to get as much information as possible on Navy leadership courses[4] and the TQM concept. The course outlines provided by Director, Pride, Professionalism and Personal Excellence (OP-15) and Naval Education Training Center formed the basis of the needs analysis, which investigated what leadership competencies were currently being taught at the SWO school command.

[4]The existing leadership courses examined were Command Excellence for PXO/PCO Course and LMET for Division Officer and Department Head Courses.

# IV. RESULTS

The results are presented by addressing each of the subsidiary research questions in the same format as they were given in the methodology section of this thesis.

## A. TQL PRINCIPLES APPLICABLE TO THE SURFACE NAVY

### 1. Telephone Interviews

Since open-ended questions were used in these interviews, the results are varied. These results, presented below, indicate trends where the data permit. Just as importantly, though, are the data collected that indicate how TQL principles are working at Navy commands. Specific examples are cited in the results below that provide the authors answers to their research questions dealing with where TQL principles will work in the Surface Navy.

The telephone interview respondents all shared the common belief that TQL was the correct management system to use at their commands. They agreed with the literature which says that the support for TQL must start at the top. The command must have a vision of how TQL will guide the organization in the future. The CNO has planted a seed to create a vision for the implementation of TQL in the operational Navy. The required reading list, included in his memorandum (See Appendix D) to all Flag Officers, will help cultivate that TQL vision. [Ref. 25]

Ninety percent of the interviewees stated that at their commands TQL training had started at the top and had helped in the creation of a command vision. After creating this vision, TQL training continued downward, throughout the organization, following the "just in time" method of training. [Ref. 26:pp. 32-40] This method consists of a top to bottom, layer by layer, training program. Starting with the highest level, each layer of management must be trained and then allowed a period of time to permit the training to be absorbed by all members of a particular management level. [Ref. 27:p. 58] Then, the next lower level of an organization is trained in a similar manner, until the entire work force is educated in the TQL process. Nearly all interviewed commands stressed the importance of a training program that followed this format.

Since each command within the Navy is responsible for their own TQL training, many respondents chose to use already existing training programs to educate their upper level managers. These included both civilian training programs existing at IBM and military programs such as the ones offered by NPRDC San Diego, California. One command used the IBM program and sent top level managers to TQM Seminars given by Tom Peters. For lower level employee training most commands integrated the above mentioned TQL training courses with their own. At one NSC command, a half-day, 3-week course was given to all employees.

The course completely described, in detail, all of the functions of the center. This allowed the workers to become aware of all the work processes that were involved in their command.

In conducting the telephone interviews, we found some problem areas in the use of TQL in the Navy. The two areas that appear to be highly incompatible with current Navy practices are personnel evaluation ratings and reliance on final inspections as a means to ensure quality in goods and services. At one facility where DoD civilians were employed, the evaluation problem was easily solved. By changing to team evaluations, as TQL calls for, the annual merit rating for individuals disappeared. At another command, where having to rank employees' performance was required by law, the management incorporated a new set of performance criteria to evaluate employees. This set of behaviors graded in their performance evaluations were based on TQL principles such as team work, training, driving out fear in the work place and use of leadership in day to day activities. But when dealing with active duty personnel, individual evaluations are still required. These are still the current means to measure the performances of thousands of people of the same pay grade, across the entire Navy structure, when it comes time for selection for promotion. Since the entire Navy has yet to adopt the TQL management system, the interviewed commands

simply continued to perform standard, Navy evaluations on their personnel.

The opening up of communications from subordinates to high level management was observed in 90 percent of those interviewed. At one weapons engineering and maintenance facility, suggestions in the suggestion boxes required a written response within one week's time. If not acted upon within this time limit, the suggestion is passed on to the facility's commanding officer. At the same facility, the TQL concept of quality as defined by the customer was illustrated. After a complete test evaluation on a particular piece of equipment was accomplished, the equipment was sent to a shipyard to be installed. Upon receipt of the equipment, a similar test was completed by the shipyard personnel. Unfortunately the results were quite different than those performed by the manufacturer. Not until months of ordering new parts had passed was the equipment able to pass the testing phase so that ship board installation could occur. The command started a new program that required the shipyard to send back the equipment, a list of all tests conducted and the results of those tests to the manufacturer. The end result of this information exchange of data concerning the test enabled the manufacturer to correct the discrepancies at his end. The manufacturer now established a quality standard based on his customer's definition of quality.

Statistical process control (SPC) had been used at 95% of the commands interviewed. Those commands where manufacturing and repair work is conducted relied the heaviest on SPC. An example of this can be seen at the NADEPs where the quality of bearings were improved once their manufacturing process was brought into statistical control. The command which had not applied SPC was still in the beginning phases of TQL implementation.

The literature suggest that most organizations have difficulty in implementing TQL due primarily to resistance to change. This resistance is evident in the work force when it comes to changing a rating system that, for years, has been the basis for employee promotions. Converting to team evaluations puts workers in the unusual position of having to rely not only on his own but his peers' performance as well. Another source of resistance lies with managers. They do not want to give up the power and control associated with final inspection.

**2. "Navalized" TQL Compared To TQM Principles**

The CNO sent a memorandum to all flag officers on August 13, 1990, concerning the implementation of TQL in the operational Navy. In this memorandum, Admiral Kelso "Navalized" Deming's management principles, and these are shown in Table 2 below. The memorandum went on to describe the product of the Navy as being combat readiness. Additionally, the CNO called for the Navy to obtain

superiority of this Navy product and to improve it continuously. In general, he described the primary thrust of TQL to be in the areas of improvement of quality, meeting the needs of the customer, product improvement through the improvement of process, and a focus on leadership, training and personnel management. [Ref. 28]

**TABLE 2**

**FOURTEEN POINTS OF TQL**

("Navalized" Version of Dr. Deming's Fourteen Points)

[Ref. 29]

1. Understand the mission and principles of the Navy. Have a clear grasp of how your command supports the Navy's mission and how the principles apply to your day-to-day actions.

   * We are developing the words to send you for the Navy's missions and principles. From these you can develop the mission for your organization.

2. Quality is the essence of TQL. Insist on quality performance and material. Do the job correctly the first time.

3. Know your job. Analyze and understand every facet of your responsibilities and those of your people.

4. Words alone don't solve problems. Look first at the process and the system for faults and solutions, not the people. Improve the process, train the people.

5. Quality training is the key to success. People must be fully trained to do their jobs. You are never too senior to learn.

* To do your best is not good enough unless you are properly trained to do the job.

6. Use analytical methods to understand and improve your jobs. Graphs and charts, properly used, are invaluable tools in this effort.

7. We are a team. We must work together across departments and commands.

* We must listen to the most junior people. All are charged of making the work place and quality of life better. All suggestions for improvement must be explained and action taken or rejected by the leadership.

* The leader must provide those who suggest improvements and ideas with feedback as to what is being done with the suggestion. The leadership will not necessarily adapt all ideas but the leadership must provide the feedback on every suggestion.

8. Create an atmosphere of trust and open communication where everyone shares a sense of pride in their work.

* Get fear out of the work place. Create an atmosphere in which people tell you what is wrong in order that it can be fixed.

* Unless we recognize the problems we can not improve.

* We need to reward people who have the courage to tell us what they see that needs improvement so we can get better.

* Good ideas and lessons learned must be transmitted and shared between departments and commands.

9. Inspect smarter. Inspections should be methods of learning and improvement rather than threatening events.

* As all learn to do the job correctly the first and every time, the number of inspections will decrease.

10. Demand quality, not quotas.

* Quality in the work place and in our lives is what we strive for.

* If we get quality, all the other goals and quotas will follow.

11. Education and self improvement are just as important as training. We must always get better.

* Everyone must be involved in training and self education.

12. All improvements, big and small alike, are important.

13. Be a leader. Your job as a supervisor is to guide and assist your people.

* The leader gets his people tools and training they need to do their jobs correctly.

* It's the leader's responsibility to ensure his people are properly trained for the job before they are placed in a position of standing a watch, starting a pump, lighting off radar, firing a gun, loading a missile, etc.

14. All hands, from seaman to admiral, must learn and use TQL.

Source: Memorandum to All Flag Officers on Total Quality Leadership dated 13 August 1990 by Chief of Naval Operations, Frank B. Kelso, II.

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The memorandum continues with an example of how TQL can be used to assist a ship in setting material condition

zebra in training exercises.[5] In the example, the solution to the problem of failing to correctly set zebra would be found via TQM methods such as data collection, process review, and team generated solution. Furthermore, Admiral Kelso stresses that as the leader of the Navy, he is fully supportive of TQL. A reading list is provided to familiarize the addressees with the TQL philosophy. [Ref. 30:pp.2-3]

A comparison of TQL and TQM principles is made here to analyze how close the Navy's TQL principles are to those principles found in Deming's TQM. This comparison estimates the extent that the Navy's TQL principles align with Deming's TQM principles. In comparing the two lists of fourteen points each, we refer to the original list by Deming (see Table 1) as Deming's. The Navalized principles are referred to as Navy's.

The following discussion is a point by point comparison of the CNO's Navalized version with Deming's Management principles. The similarities and differences with the two sets of principles are noted.

The Navy's first point states that each command understands the overall mission and principles of the Navy. Furthermore, a command must perceive how it contributes to this mission in its day to day activities. The first point of Deming's talks of a consistency of purpose toward improvement of the product and service that is similar the Navy's overall

[5]Material condition zebra describes the water tight condition of a surface ship when the ship is ready for combat. In zebra, all water tight fittings throughout the ship are secured.

mission and principles statement. The rest of Deming's point one discusses the need to stay in business to provide jobs. The Navy is not in a private, competitive business and therefore does not address this issue. The CNO is currently developing more information on the Navy's mission and principle statements to further guide organizations in developing their missions. [Ref. 31:p. 4]

The Navy agrees with Deming about product improvement and that quality is important since it forms the basis for TQL. Both stress the importance of accomplishing tasks correctly in the first attempt. Deming believes this is critical because, by doing the task correctly the first time, quality will be built into the product. Therefore, the need for mass inspections will be eliminated. This illustrates a minor difference between Deming and the Navy. The Navy calls for the reduction, rather than the elimination of inspections. They prefer to "inspect "smarter" by making inspections a less threatening, learning experience, which will improve quality.

The Navy and Deming both state the inability of words or slogans to accomplish goals. They agree that the primary source of inefficiency in a system is due to the process itself and not the people in the system. Any attempt to ask for perfection that is beyond the limits of a particular process', serves only to frustrate workers. Therefore, we should look to improve the processes and not blame workers for defects beyond their control.

Additionally, they agree in the importance of training the people. Quality training is stressed as the key to success. Only when the best effort of employees is coupled with their proper training is the effort good enough. The Navy and Deming discuss the need for statistical control to improve performance.

The importance of subordinates' input is emphasized, as is the responsibility of the management to respond to the input, by both Deming and the Navy. Team work throughout the organization is called for by both sets of principles. This team work is possible only once barriers between management and the work force are dismantled. Once these barriers are removed, an atmosphere of trust and open communications will develop. Workers can suggest, without fear of reprisal, what is wrong with a process so changes can be made. Unreported problems are hard to fix and people need to be rewarded for the courage that is required to speak up when something is not right. Furthermore, the transmission of new ideas or solutions to problems must be shared within the command as well as with other commands.

The Navy agrees with Deming on eliminating quotas as a management tool. The Navy says that once quality is in place, quotas and goals will be met. In addition, Deming recommended substituting leadership for management by objectives.

Both the Navy and Deming illustrate the need for improvements to better the processes within an organization. This can be accomplished by guiding and assisting our subordinates. The Navy and Deming believe that leaders should provide subordinates with the tools and training to perform their work. Leaders must insure their people are properly trained prior to accomplishing a task on their own. Finally, both call for all personnel to learn and use TQL.

Conspicuously missing from the Navy's fourteen principles are two of Deming's points. The first point is where Deming calls for the end of awarding business on the basis of price. Deming states that by using long term relationships that are structured on trust and loyalty with suppliers, total costs are lowered in the long run. The Navy is currently prohibited by statute from conducting business in this fashion. [Ref. 32] Deming's other principle missing from the Navy's list is the removal of barriers caused by annual or merit ratings. The current structure of the Navy's promotion and retention systems are based on these exact merit ratings.

The above comparison shows that the Navy's TQL principles do not exactly match Deming's TQM principles, but the Navalized list does represent most of the content of Deming's work. This timely message certainly assists the authors of this thesis in determining the answers to our research question involving where TQL would work in the

Surface Navy. Perhaps the single most important message found in the memorandum is when Admiral Kelso stresses the fact that he, as the leader of the Navy, fully supports TQL.

Admiral Kelso believes that Deming's system will work in the operational assets of the Navy with the exception of the two principles noted above. The data collected from shore establishment where TQL is implemented illustrate similar differences with Deming's principles. However, a trend is developing towards resolving the difference in the merit rating system. Although not completely removing such systems, those shore establishments with civilian employees have begun to modify their merit rating system in one of two ways. One method was to change from individual to team appraisals. The other method was to grade individuals on their performance in terms of TQL management qualities such as team work and subordinate development. With the experiences gained through practical application, the Surface Navy may someday move closer to fully embracing Deming's fourteen principles of management.

### 3. Shipboard Leadership Compared To TQL

Many activities on board Navy ships contain basic elements of the TQL process. The following examples are of these types of practices, where they fall short in TQL techniques, and what is needed to make them a complete TQL process.

Shipboard planning is accomplished weekly during Planning Board for Training (PB4T). The TQL principle already existing at PB4T is the practice of having a ship wide representation of upper level management meet weekly. Similar to the Executive Steering Committee[6] (ESC), this board is headed by the Executive Officer (XO). [Ref. 33:p. 5] Its membership includes all department heads, Damage Control Assistant, Off Ship Training Coordinator, Master Chief of the Command, 3M Coordinator and the Chaplain. The XO directs the scheduling of all essential training required by Navy regulations. Additional training requirements requested by members of the board are acted upon. Any problems arising on the ship can be brought out for discussion and acted upon by this upper management group. All upcoming extraordinary events are discussed. A plan of the week for the coming week is drawn and published for the crew's benefits.

PB4T falls short of all the required TQL principles required of an ESC in several areas. They need to consider all areas of shipboard processes, not just training and extraordinary events. Once these processes are identified the upper management must refrain from directing, as they do now, the actions of the crew who are involved in these processes.

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[6]The ESC is represented by the highest level of management and formulates the organization's strategic goals toward its quality improvement efforts.

Instead, PB4T should form process action teams (PAT)[7] to work on command processes. [Ref. 34:p. 6] These teams will find ways of improving the processes identified by the ESC. If applicable, statistical analysis, will be employed to bring the named process under control. Thus the people with the most working knowledge of a process will be the people who actually make a process more efficient. [Ref. 35:p. 7]

Another area where shipboard activities are close to being in congruence with the TQL principles associated with PATs is in the proper use of the chain of command. Up and down the chain of command, individuals talk with their counterparts from other organizations within the command. An example is when the chief in one division speaks to the chief of another division to discuss possible alternatives of best solving a particular problem that crosses both divisions boundaries. This occurs every time First Division, which is responsible for painting, makes sure the surfaces in the space about to be painted have been properly prepared and taped off. The same inter-divisional coordination takes place when the welders in the hull technician shop work with the machinist mates in A-gang to repair the ice machine that belongs to the Supply department. Two department heads discuss the process with three division officers, who in turn talk to their three chiefs. These chiefs discuss the details of the work with

[7]PAT is comprised of the workers involved in the process being investigated. Members are selected based on their knowledge and expertise in operational areas.

their respective first classes to decide how best to have the actual workers perform the work. To make the same process match completely with the TQL methods, a PAT would be formed to include the actual workers along with representative members of each worker's chain of command. [Ref. 36:p. 11]

Quality improvement is an area where the Surface Navy can use TQL principles. According to TQL guidelines the definition of quality is provided by the customer. [Ref. 37:p. 156] For example, when it comes to meeting operational commitments in the Surface Navy the customer is the Fleet Commander. It is the Fleet Commander that places ships throughout the world to meet the needs of the Navy. Yet in the present scheme of the Navy, a ship's overall readiness is determined by other people such as the Type Commander or his support staff, the local Squadron Commander, the Fleet Training Group Commander, or the local Group Commander. In a TQL Navy, the Fleet Commander would decide what level the readiness of his assigned ships have attained. This level of readiness would be determined by a ship's performance during actual operations and not by a set of inspections.

In the current Surface Navy, inspections are relied on heavily to test the quality of a ship's performance, a direct violation of TQL. Perhaps the best example of this is the Operational Propulsion Plant Examination (OPPE) that is given to each ship on an 18 month basis to determine its operational readiness in all areas involving engineering. This inspection

includes performance of watch standers, the material condition of the engineering plant, engineering knowledge levels of the crew, damage control, and administrative programs. These inspections originated after a period when Navy ships were unable to get underway for operational commitments due to engineering problems. Additionally, watch standers were being injured, even killed due to unsafe practices. [Ref. 38] Long term health problems such as hearing loss due to not wearing hearing protection in the engineering spaces, or kidney failures due continual heat exposure were occurring too often. OPPE was the Navy's answer to these problems. Failure in a single area causes a failure of the entire examination. The inspection, as a tool, identifies, but does not correct any problems that exist in a ship's engineering plant. Within a TQL environment, this identification of problem areas is better performed by the ship's force. Fear of failure is the ship's driving force to pass an OPPE. Again this is all done to inspect the quality of one phase of a ship's operational readiness. No training is taking place. No systems are being improved. There is <u>no value added</u> in that ships pass or fail as they stand on that particular inspection.

Many expensive person hours are lost in both preparing to pass an inspection and in completing the actual inspection itself. Valuable fuel is spent in the underway time needed to accomplish this 48-hour inspection. The OPPE inspection teams, consisting of 5 members who range in rank from

Lieutenant to Captain, spend many person hours in travel to and from the ships besides the actual inspection time. The travel costs alone for a team doing one inspection on a West Coast OPPE are as follows:

San Diego----------$150

San Francisco----------$3,500

Hawaii----------$5,000

Japan----------$7,000

The above costs exclude the pay and allowances for the inspection team that averages $20,000 a month. [Ref. 39] Light Off Examinations (LOE) are also given to ships by the same inspectors at the same cost per inspection.[8] The Type Commanders average an additional $750,000 per LOE in getting a ship into the conditions necessary to pass the inspection. [Ref. 40] In the last 12 months, 120 OPPE's or LOE's were administered on the West Coast. There were 90 successful examinations and 30 failures. [Ref. 41] In either case, the only positive contribution of the inspection to the ship is the identification of discrepancies. Again, this task is better performed by shipboard personnel.

In the TQL process each worker inspects his or her work and rejects failures based upon a statistical process. By doing this, unacceptable products no longer require

[8]LOE's are given to ships after long periods of time when the engineering plants are idle. An example of this would be at the end of a shipyard period.

additional person hours to be transported, stored, and reinspected. [Ref. 42:p. 62] The overall performance of the engineering department will improve since those workers with their hands on the equipment use statistical analysis daily to monitor performance. The collection of statistical data required to conduct such analysis is currently taking place on ships throughout the fleet. Log sheets, with hourly and daily entrees of operational parameters of equipment, are required to be kept on board for two years. The OPPE inspection team pours over these records to ensure that all recordings are taken. Any out of limit parameters must be annotated with the reason for the discrepancy and corrective actions taken by the crew must be recorded. These data could be used to bring equipment into statistical control so that quality could be improved. When equipment is no longer within statistically set tolerances, adjustments, repairs or replacements can be made. Preventive maintenance could be based on the results of these statistical records so that needless maintenance could be eliminated.

Fear of reprisal for equipment that fails to meet quality standards, according to TQL, should be removed from the work place. This should be allowed to occur in the Navy and in many instances it does. For example, when an operational asset such as a radar is inoperative, the

commanding officer sends a CASREP message.[9] This message seeks assistance for repairs and informs the Fleet Commander that one of his ships has inoperative equipment that might impair the ship's ability to fight. At times though, in an attempt to appear to be 100 percent ready, entire battle groups[10] have reported to be CASREP free. This would appear to be an inaccurate description of a battle group, given the enormous amount of equipment that undergoes strenuous workloads in a hostile, at sea environment. Few commanding officers would want to be the ship which removed the CASREP free status from the battle group.

Process improvement is a TQL principle that has potential for use in the Navy. Engineering Operational Sequencing System (EOSS) is an engineering document for standardized operating and casualty control procedures for the main engineering plant and its auxiliary equipments. Every person in engineering must be familiar with its proper use and must follow it strictly. Since the equipment operators are the enlisted personnel, they use this document most often.

Twice a year, the engineering department is tasked by Navy instruction to conduct an EOSS validation review. This review consists of verifying that all the pages are up to date

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[9]CASREP is short for Casualty Report, a formatted message that requests assistance in repairing inoperative equipment.

[10]A Battle Group is a group of ships, usually centered around an aircraft carrier that is capable of carrying out one of the Navy's many missions. These include power projection, controlling sea lines of communications, and sea control.

and that the engineering systems description and procedures contained therein are correct. Very often, this task is assigned to the officer in charge of the engineering space involved. Since the officer is not normally involved in using the EOSS, (the equipment operators are the users of EOSS), it can result in an improper EOSS validation review.

The idea of continuous process improvement is present, but the wrong person is assigned to complete the task at hand. A modification of how to conduct the EOSS validation review would improve the EOSS two-fold. Under the TQL procedure, the PAT would accomplish the task because they would be most familiar with the EOSS. Also, they are the ones who could identify problems, if any, because they are the users.

## B. FLEET LEADERSHIP COMPETENCIES

The OSI data provided information concerning the TQL competencies currently being practiced in the fleet by SWOs. These results will form the basis for the answer to our second subsidiary research question.

### 1. OSI Analysis

Statistical analysis of the OSI using SAS PROC MEANS procedure provided the percentage of time SWO's spend on technical, management and leadership functions. Results, as expected, showed that SWOs spend the least time in technical functions and a somewhat greater amount of time between management and leadership functions. Figure 3 is a representation of this analysis. There were no differences

between junior and field grade officers. The importance of these findings are that officers spend most of their time in the areas of management and leadership. These findings are

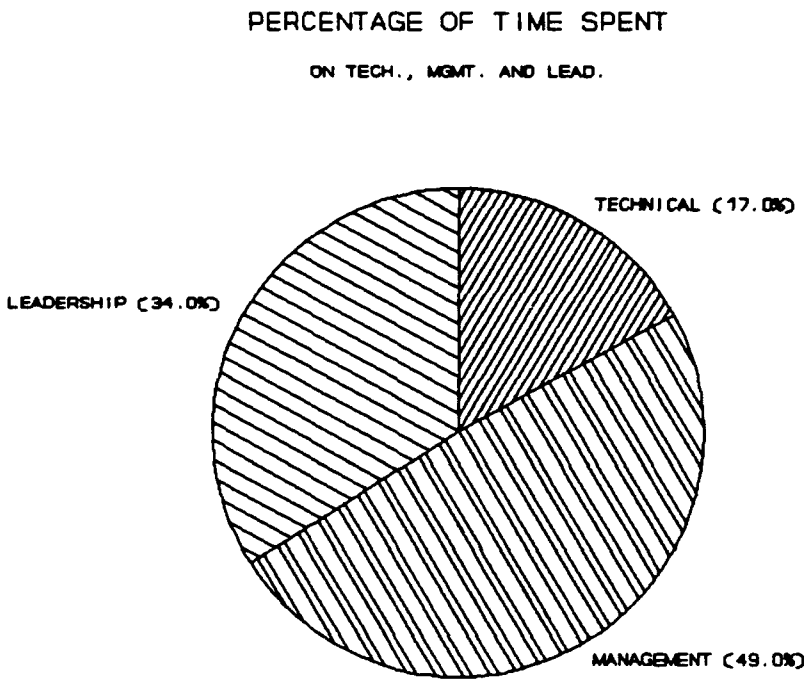


**Figure 3**
**Percentage of Time Spent**
**On Tech., Mgmt, and Lead.**

**Source: Officer Survey Instrument, July 1988 (extract)**

important because they establish the fact that SWOs are not technical experts, but are leaders and managers.

The remainder of the OSI data were analyzed using SAS PROC FREQ procedure. We first examined management

questionnaires to see what percentage of the SWOs perceive a particular management task as a major part of their job. The subjects, 266 SWOs who ranged from pay grades O1 to O6, were divided into two categories. Junior officers, O1 to O3, made up the first group, while field grade officers, O4 to O6, made up the second group. The two groups were compared to determine if there are any differences in management tasks performed by junior officers as compared to field grade officers. Statistical results are provided in Table 3.

Table 3 suggests that there are differences between junior officers and field grade officers in the management activities that they perform. Compared to the field grade officers, fewer junior officers responded that these management activities are a major focus of their job. Management activities included those requiring planning for manpower, activity and future developments. Other management activities analyzed included making judgments involving operations and objects,[11] and coordinating and purposeful interaction with others. Planning is essential in a TQL environment. This can be seen in the activities performed from the ESC down to the PATs. While there are differences in the amount of planning done by both the junior and senior groups, it is obvious that planning is being done in the fleet by each. Of course planning requires coordination among

[11]Objects refers to machinery, equipment and facilities.

**TABLE 3**

**MANAGEMENT**

**TO WHAT EXTENT ARE THE FOLLOWING ACTIVITIES A PART OF YOUR CURRENT JOB? (percentages)**

| ACTIVITY | 01-03 | | | 04-06 | | |
|---|---|---|---|---|---|---|
| | R | RT | M | R | RT | M |
| 1. WORK SCHEDULING | .20 | .42 | .38 | .14 | .38 | .48 |
| 2. MANPOWER PLANNING | .64 | .25 | .11 | .44 | .26 | .30 |
| 3. ACTIVITY PLANNING | .30 | .46 | .24 | .13 | .29 | .58 |
| 4. PRE-DEPLOYMENT PLANNING | .50 | .29 | .21 | .59 | .17 | .24 |
| 5. PLANNING FOR FUTURE DEVELOPMENTS | .60 | .30 | .10 | .28 | .31 | .41 |
| 6. PROCESSING OF INFO AND IDEAS | .42 | .41 | .17 | .31 | .36 | .33 |
| 7. ANALYZING AND SYNTHESIZING INFO/IDEAS | .36 | .43 | .21 | .20 | .46 | .34 |
| 8. MAKING JUDGMENTS INVOLVING PEOPLE | .12 | .42 | .46 | .17 | .33 | .50 |
| 9. MAKING JUDGMENTS INVOLVING OPS/OBJECTS | .40 | .42 | .18 | .14 | .41 | .45 |
| 10. DIRECTING OR SUPERVISING OTHERS | .14 | .31 | .55 | .18 | .28 | .54 |
| 11. COORDINATING | .25 | .48 | .27 | .09 | .27 | .64 |
| 12. PURPOSEFUL INTERACTION WITH OTHERS | .12 | .55 | .33 | .04 | .33 | .63 |
| 13. USE OF PROCEDURES, TECHNIQUES OR PROCESSES | .26 | .49 | .25 | .33 | .43 | .24 |
| 14. INVOLVED IN INSPECTIONS | .31 | .48 | .21 | .48 | .20 | .32 |

Legend: R = Rarely, RT = Routinely, M = Major Focus

peers, subordinates and superiors involved in a particular activity. Next, the leadership portions of the questionnaires were analyzed. As stated earlier, TQL principles require both lateral and vertical interactions to be successful. The following analysis will explore the degree of interactions transpiring in the fleet today. Again, the subjects were divided into two groups as explained above. Table 4 illustrates the percentage of respondents who say how often they interact with their superiors, peers and subordinates.

**TABLE 4**

**LEADERSHIP: ORGANIZATION INTERACTION**

| HOW OFTEN DO YOU INTERACT WITH YOUR: | 01 - 03 | | | 04 - 06 | | |
|---|---|---|---|---|---|---|
| | Never | Routine | Always | Never | Routine | Always |
| 1. SUPERIORS? | .02 | .23 | .75 | 00 | .22 | .78 |
| 2. PEERS? | .06 | .35 | .59 | .10 | .34 | .56 |
| 3. SUBORDINATES? | .06 | .17 | .77 | .11 | .12 | .77 |

**Source: Officer Survey Instrument, July 1988 (extract)**

Results on Table 4 indicate that over 70% of SWOs, regardless of rank, interact often with their superiors and subordinates. However, just over half of the respondents say that they interact often with their peers. It shows that SWOs

interact well above and below the chain of command but lack in lateral command interaction. To further analyze the questions on SWO interaction, we examined the different types of interactions SWOs encounter in their current job and the percentage of SWOs who indicated that those types of interactions are important to them as indicated in Tables 5, 6 and 7.

In Table 5 below, we look at how SWOs interact with superiors in the areas of giving and receiving advice and information, along with receiving counseling. Although results in Table 4 show that 75% of junior officers interact often with their superiors, only 43.7% of junior officers responded that "giving advice to superiors" is important. One explanation to this result could be that most junior officers perceive themselves as lacking in experience and expertise to be able to give advice to superiors. However, as officers become more senior in rank, more of them perceive giving advice to superiors as very important. The junior officers' perceptions that giving advice up the chain of command is unimportant are not in congruence with TQL principles. With TQL, subordinate input is highly valued. Therefore, junior officers must be encouraged to offer advice to their superiors.

**TABLE 5**

**IMPORTANCE OF PERSONAL INTERACTIONS**

HOW IMPORTANT ARE THE FOLLOWING TYPES OF INTERACTION YOU ENCOUNTER IN YOUR CURRENT JOB? (With Your Superiors)

| | 01 - 03 | | | 04 - 06 | | |
|---|---|---|---|---|---|---|
| | UNIMP | IMP | VERYIMP | UNIMP | IMP | VERYIMP |
| 1. GIVING ADVICE | .22 | .34 | .44 | .09 | .20 | .71 |
| 2. RECEIVING ADVICE | .07 | .28 | .65 | .12 | .22 | .66 |
| 3. GIVING INFO | .07 | .28 | .65 | .12 | .22 | .66 |
| 4. RECEIVING INFO | .05 | .15 | .80 | .01 | .09 | .90 |
| 5. RECVING COUNSEL | .05 | .18 | .77 | .02 | .17 | .81 |

**Source: Officer Survey Instrument, July 1988 (extract)**

Next, we examined SWO interaction with peers as seen in Table 6. It is clear that only a small percentage of both junior and field grade SWOs indicated that giving and/or receiving advice or counseling to or from peers is important in their current job. It should be noted, however, that within the same two groups, more than 50% of the respondents indicated that receiving and giving information to peers is important. Within the realm of the TQL philosophy, team work and inter-organizational communications are essential. To this end, advising, counseling and information sharing must be pursued to a greater degree then those indicated in Table 6.

**TABLE 6**

**IMPORTANCE OF PERSONAL INTERACTIONS**

HOW IMPORTANT ARE THE FOLLOWING TYPES OF INTERACTION YOU ENCOUNTER IN YOUR CURRENT JOB? (With Peers)

| | 01-03 | | | 04-06 | | |
|---|---|---|---|---|---|---|
| | UNIMP | IMP | VERYIMP | UNIMP | IMP | VERYIMP |
| 1. GIVING ADVICE | .23 | .37 | .40 | .29 | .28 | .43 |
| 2. RECVING ADVICE | .27 | .42 | .32 | .29 | .32 | .39 |
| 3. GIVING INFO | .12 | .27 | .61 | .13 | .22 | .65 |
| 4. RECEIVING INFO | .12 | .33 | .55 | .12 | .21 | .67 |
| 5. GIVING COUNSEL | .50 | .30 | .20 | .64 | .16 | .20 |
| 6. RECVING COUNSEL | .60 | .28 | .12 | .76 | .16 | .08 |

**Source: Officer Survey Instrument, July 1988 (extract)**

Finally, we looked at SWO interaction with subordinates. Table 4 shows that 77% of junior officers and field grade officers responded that they interact often with their subordinates. Results in Table 7 below show that a smaller percentage of junior officers, as compared to field grade officers, believe that receiving advice from subordinates is important. Most junior officers have enlisted personnel as their subordinates while field grade officers often have junior officers working directly under them. It is possible that junior officers do not value the advice given by their subordinates as much as field grade officers value the advice of their junior officers. Again, as mentioned before, in the TQL environment, communications emanating from the lower end

of the chain of command is equally important as communications coming from other sources. Therefore a higher level of participation from both groups in valuing all advice from subordinates will create an environment more closely tied to TQL.

**TABLE 7**

**IMPORTANCE OF PERSONAL INTERACTIONS**

| HOW IMPORTANT ARE THE FOLLOWING TYPES OF INTERACTION YOU ENCOUNTER IN YOUR CURRENT JOB? (With Subordinates) | 01-03 | | | 04-06 | | |
|---|---|---|---|---|---|---|
| | UNIMP | IMP | VERYIMP | UNIMP | IMP | VERYIMP |
| 1. GIVING ADVICE | .08 | .16 | .76 | .14 | .14 | .72 |
| 2. RECVING ADVICE | .24 | .33 | .43 | .23 | .21 | .56 |
| 3. GIVING INFO | .06 | .18 | .76 | .11 | .14 | .75 |
| 4. RECEIVING INFO | .08 | .16 | .76 | .10 | .11 | .79 |
| 5. GIVING COUNSEL | .12 | .19 | .69 | .25 | .14 | .62 |
| 6. RECVING COUNSEL | .69 | .16 | .15 | .85 | .10 | .05 |

**Source: Officer Survey Instrument, July 1988 (extract)**

The final OSI leadership data that we analyzed dealt with the degree of importance of the different job performance characteristics in accomplishing the work the SWO's do in their current job. These job performance characteristics are the same leadership competencies taught in SWO leadership courses. Table 8, below, is a summary of the findings.

**TABLE 8**

**LEADERSHIP: JOB PERFORMANCE CHARACTERISTICS**

HOW IMPORTANT ARE THE FOLLOWING JOB PERFORMANCE CHARACTERISTICS IN ACCOMPLISHING THE WORK YOU DO IN YOUR CURRENT JOB?

| | 01-03 | | | 04-06 | | |
|---|---|---|---|---|---|---|
| | UNIMP | IMP | VERYIMP | UNIMP | IMP | VERYIMP |
| 1. USE OF MULTIPLE INFLUENCE STRATEGIES | .03 | .20 | .77 | .03 | .18 | .79 |
| 2. TEAM BUILDING | .04 | .11 | .85 | .06 | .14 | .80 |
| 3. DEVELOPING SUBORDINATES | .07 | .10 | .83 | .20 | .10 | .70 |
| 4. CONCEPTUALIZATION | .16 | .24 | .60 | .11 | .23 | .66 |
| 5. INITIATIVE | .03 | .09 | .88 | .01 | .10 | .89 |
| 6. PERSISTENCE | .01 | .09 | .90 | 00 | .07 | .93 |
| 7. POSITIVE AND REALISTIC EXPECTATIONS | .05 | .13 | .82 | .12 | .06 | .82 |

**Source: Officer Survey Instrument, July 1988 (extraction)**

A large percentage of SWOs in all ranks indicated that the above described job performance characteristics are important in accomplishing the work that they do in their current job. In general, those job performance characteristics are important since they are in line with TQL principles. Two observations from Table 8 aroused our curiosity. "Team Building" and "Developing Subordinates" appear to decrease in importance as SWOs become field grade officers. To identify any pattern or trend in the result, we ran a SAS PROC FREQ procedure on those two categories in each

pay grade (01-06). Figures 4 and 5 below illustrate the findings.

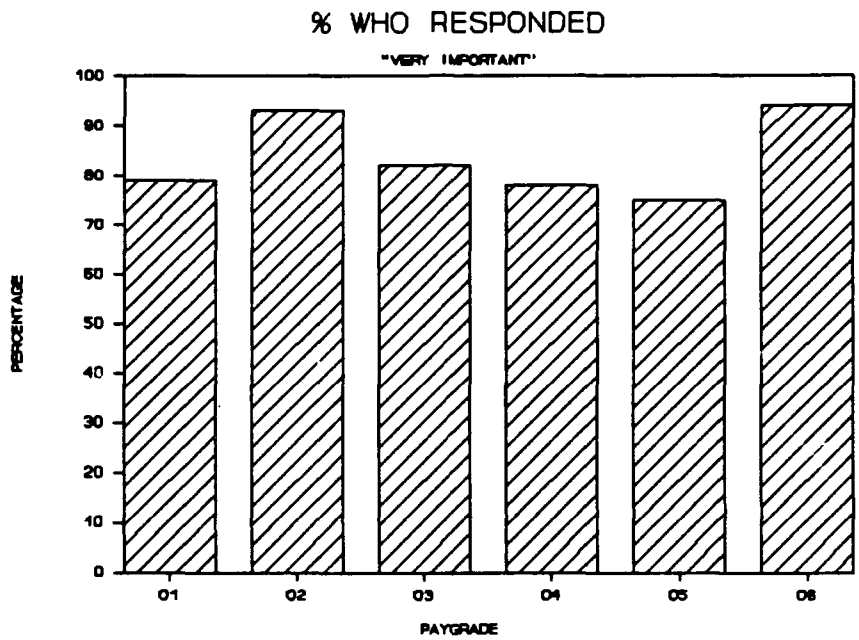


**Figure 4**
**Importance of Team Building**

**Source: Officer Survey Instrument July, 1988 (extract)**

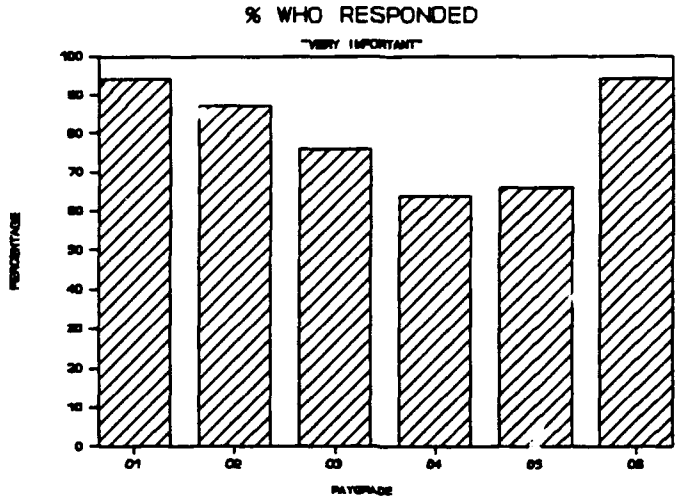


**Figure 5**
**Importance of Developing Subordinates**

**Source: Officer Survey Instrument, July 1988 (extract)**

There is no identifiable pattern in "Team Building" other than the observation that over 90% of pay grades O2 and O6 believed that "Team Building" is important in accomplishing their work. At least 75% of respondents across all ranks demonstrated the belief that team building is important to their job. In most pay grades, the results were even higher. Therefore, the team building concept of TQL is perceived as important in the Surface Navy.

One notable, surprising result was found in the area of "developing subordinates". Over 90% of SWO's in pay grade 01 believe that developing subordinates is important. But, as they go up in rank to pay grade 05, fewer of them believe that

developing subordinates is important. It appears that as a junior SWO moves up in pay grade, he or she loses sight of the importance of developing subordinates as a part of their professional obligations. The importance of developing subordinates increased, however, for the SWO in pay grade 06. From these observations it can be seen that an understanding of the importance of subordinate development exists within our mid-grade officers. Only after satisfying this need will the SWO Navy be in compliance with TQL requirements.

The OSI data provided valuable information concerning the leadership and management competencies supportive of TQL that officers reported as present in the Surface Navy. Examples of competencies present in the Surface Navy are team building, work scheduling, and persistence. The same data also indicated where the Surface Navy leadership and management competencies fail to meet TQL requirements.

## C. NAVY LEADERSHIP COURSES

The leadership training of SWOs is done in two phases. In phase one, as division officers and department heads, the leadership training comes in the form of LMET. Later in their careers as executive or commanding officers, they receive their leadership training in the form of the Command Excellence Course. The proceeding discussion analyzes current Navy leadership courses taught to SWOs to determine if TQL competency requirements are being met.

### 1. LMET

LMET occurs primarily at Surface Warfare School Command (SWOSCOLCOM) at Newport, RI. The Surface Warfare Officer Division Officer Course (SWOSDOC) LMET covers a wide range of topics including counseling, communicating with immediate superiors and subordinates, leadership styles and learning styles. The classes are taught in a less structured fashion as compared to the previous SWOSDOC courses (e.g., navigation), and no tests are given. Role playing, case studies, group participation as well as instructor lecture are used in the classroom to teach LMET.

The LMET course uses the term "characteristic" in place of the term competency. The thirteen characteristics of an outstanding division officer are listed in Table 9, below, and further defined in Appendix E.

**Table 9**

**CHARACTERISTICS OF OUTSTANDING DIVISION OFFICERS**

| | |
|---|---|
| 1. | TAKES INITIATIVE |
| 2. | FOLLOWS THROUGH |
| 3. | DEMONSTRATES SELF-CONFIDENCE |
| 4. | SEEKS INFORMATION |
| 5. | PLANS |
| 6. | MANAGES TIME EFFICIENTLY |
| 7. | ENFORCES HIGH STANDARDS |
| 8. | PROMOTES GOOD WORKING RELATIONSHIPS WITH THE CHIEF |
| 9. | DEMONSTRATES CONCERN FOP OTHERS |
| 10. | ACCEPTS RESPONSIBILITY |
| 11. | INFLUENCES |
| 12. | COMMUNICATES |
| 13. | PROBLEM-SOLVES |

**Source: Student Guide, Naval Leadership Course, SWOSDOC.**

The first day of class centers on the different roles a division officer must fill along with his duties and responsibilities. LMET suggests the division officer needs to be a motivator, educator, manager, and leader as well as a contributing member of the wardroom. These roles compare favorably with Deming's fourteen points that stress the need for management to institute training and leadership,

coordinate with all departments with cooperation and to remove barriers that demoralize workers. Both LMET and Deming stress the importance of short and long term planning. Additionally, they each stress the need for quality as is evidenced by the need for an outstanding Division Officer to enforce standards in the LMET environment, and Deming's insistence on improving quality.

LMET describes the characteristics which make a division officer outstanding (See Table 9). TQL principles evident in these characteristics are found in the following: Seeks information; plans; enforces high standards; promotes good working relationships with the chief; influences; communicates; and manages time efficiently. [Ref. 43:p. 1.7-2] Other characteristics listed, even though they are not in complete agreement with TQL, do not necessarily add to the requirements associated with TQL principles.

Deming's ideas surface on day two of the LMET course when socialized power is discussed. [Ref. 44:p. 2.2-5] To be effective, the division must, under the division officer's leadership, define goals that inspire "pride in the organization". By doing this the group will accomplish more than if it had no say in its objectives. LMET calls for group participation to share ideas and gain a common vision for the command. LMET stresses long and short term planning in dealing with the chain of command both upward and downward.

LMET stresses rewards and punishments as motivators. Deming disagrees. The former calls for standards to be set, performance is then measured against this standard, with a reward or punishment for falling above or below the standard. Deming argued that for every one above average, there is one below average performer. At a recent Deming management seminar, Dr. Deming named employee ranking as the biggest hurdle to worker moral and therefore output. [Ref. 45] Workers who produce within three standard deviations of the mean output are all within acceptable tolerances, claims Deming. While rewarding over achievers is acceptable, those workers below the three standard deviations must be better trained or moved to more aptly suited work. He states, "I have yet to see a work standard that includes any trace of a system which would help anyone do a better job". [Ref. 46:p. 78] He also contends that standards ensure wastage and dissatisfied workers. Deming suggests that if such standards are removed, un-threatened workers shown how to produce vice how much to produce will do the best they are capable of doing.

LMET lists six leadership styles on a continuum. [Ref. 47:p. 34] The first leadership style is "pacesetter". This leader's strongest preference is to do the job himself. This practice is in conflict with TQL principles, because it does not promote team work and inter-organizational communications. The next leadership style is "authoritarian". This

leader is firm but fair and solicits some inputs from his subordinates. Thus, the authoritarian is using some TQL principles, but falls short in involving his subordinates in decision making. After getting inputs, he still makes all the final decisions. The "affiliator" is a leader who puts peoples concerns before task accomplishment. While TQL calls for being concerned with subordinates, a proper balance must be maintained between people and tasks. The "democratic" leader uses the TQL principle of inputs from subordinates in that he manages by soliciting suggestions from his people before he makes decisions. While not always a traditional Navy leadership practice, this style is the preferred TQL leadership method. A more traditional leader in the Navy is the "coercer". This type of leader, as the name indicates, violates TQL principles. A coercer insists that his subordinates do as they are told to do, without question. This leader asks for no subordinate input. The final LMET leadership style is the "coach". This leader demonstrates a very strong interest in developing subordinates. TQL principles are consistent with this type of leader.

LMET maintains that a division officer will use one or two styles most of the time, but will on occasion use all the styles depending upon the situation. TQL, on the other hand, prefers leaders to always use the democratic and coach leadership styles since they rely heavily on subordinate inputs and development. Coercers and pacesetters do not

belong in a TQL environment. They demoralize their subordinates to the point that they lose pride in the quality of their work. Authoritarian leaders might survive in a TQL organization since they at least ask for subordinate input before making all decisions themselves. An affiliator might survive the TQL litmus test, but will probably fail to meet the production requirements of his or her job.

The command climate found on each ship would play a role in the motivation of the crew and therefore the leadership styles that could be used by officers. Six elements are used to measure the command climate in LMET. First is flexibility. This must be high in both the Deming philosophy and in LMET, however the definitions of flexibility are different in the two systems. In TQL, flexibility means that new ideas are taken in and rules such as production quotas give way to quality. In the LMET sense, flexibility means being prepared to adapt to changes in set plans. The second element in command climate is responsibility. In LMET responsibility refers to having subordinates assume as much responsibility as practical for any given task. TQL also emphasizes the delegation of the responsibility for quality to the lowest level workers. LMET conflicts with TQL in the next element, standards, by stating that the manager must place much emphasis on improving performance by setting standards. However, the standard set is not specific to quality -- standards could be set on quantity. Deming argues that the

emphasis must be placed on higher quality that results from managers allowing workers to set quality vice quantity quotas.

Individual rewards, along with punishments, represent another element that needs to change in command climate to fit into the TQL structure. TQL advocates feel that workers gain satisfaction through continual quality improvement of their output. Rewards, in the Navy, are often given based on quantity and not quality.

The next element of LMET's command climate, clarity, fits well with TQL principles. This element states that high clarity in a command reflects workers who have a vision of where their command is going, as is called for with TQL. This vision is created through careful planning and dissemination of the plans to the workers. The final element of command climate is team spirit. This element characterizes an organization where all workers work in harmony for the common good of the command. Proud workers who trust each other at all levels of the organization are required for TQL to work.

LMET, in its six elements of command climate, partially supports TQL principles in the areas of flexibility, responsibility and standards. To make these elements fully supportive of TQL, the formation of these elements must revolve around the value of workers' inputs. Clarity and team spirit are the elements of command climate that are in congruence with TQL principles. The element rewards, as mentioned above, requires changing to be in compliance with

TQL principles. An acceptable alternative to the present LMET element is the use of team rewards. All punishment for failure to produce satisfactorily should be removed.

### 2. Command Excellence

Command Excellence is the current device for training perspective executive and commanding officers in the areas of leadership. These schools are six weeks in length and are taught at SWOSCOLCOM, Newport, Rhode Island. The following is an analysis of the leadership competencies included in these courses as compared to the Navalized principles of TQL.

The course is based on the Command Effectiveness Model shown in Figure 2 on page 10. This model is centered around thirteen themes of personnel characteristics or behaviors, that have been found to make COs better than average performers. Each of the characteristics is placed into one of three major areas: People, Relationships and Activities.

Starting with People, the model describes the characteristics of outstanding COs, XOs, wardrooms,and chiefs and crews, which are congruent to the TQL philosophy. These characteristics are: supporting command philosophy; developing subordinates; emphasizing training; ensuring standards are enforced; acting for command-wide effectiveness; relying on strong leadership; taking ownership in own work; living up to standards; and working as a team. These attributes are similar to leadership aspects of TQL discussed before.

The second major area of the model is Relationships, which is divided into CO-XO relationship, Chain of Command, and External relationships. The emphasis on effective communications, both up and down the chain of command is fully supportive of the TQL principles. The last major area of the model is Activities. Again, several similarities with TQL are noted. These similarities include: planning at all levels; publicizing all plans; continuously monitoring standards; enforcing standards at all levels; communicating frequently; listening to all employees; giving explanations with commands; rewarding people; giving feedback; promoting teamwork; and training at all levels.

However, the Command Excellence Model does not fully employ TQL methods in all areas. Those areas are: continuously improving the products and services; improving the system; using analytical methods to improve the system; and driving fear out of the work place. It is important to incorporate these principles to the command effectiveness model to make it fit the TQL requirements.

# V. CONCLUSIONS

The results of the comparison of Deming's principles of management and the Navalized TQL principles show both similarities and differences do appear. The two primary areas of dissimilarity occur in evaluation of employees through a rating system, and the practice of awarding contracts to the lowest bidder. As mentioned in the results section of this thesis, the low bid requirement of the Navy is provided for by law. The rating system currently forms the basis for promotion and retention. Furthermore, the Navalized principle dealing with inspecting smarter never completely conformed to the TQL requirement of using SPC as the only basis of inspections.

The results of the telephone interviews indicate that TQL must start at the top with both a vision and training for the command. Although resistance to change proved to be an obstacle in the beginning, once successful results were produced by the system, each command's TQL program overcame this inertia.

Many TQL principles are currently practiced in the fleet as evidenced by the findings from the OSI data. However, several TQL principles are missing fleet practices. These include subordinate development, lateral interaction with peers, reliance on inspections, flow of suggestions from

junior to superior officer, and reception of suggestions by junior officers from their subordinates.

The analysis of Navy Leadership Courses indicate that the foundation of TQL training exists in the officer corp. While not all competencies required for TQL are currently included in the courses, the addition of these competencies will not substantially alter the courses.

The use of final inspections to insure quality needs to be removed to fully embrace the TQL concept. This change will one of be the hardest to make in the implementation of TQL. The time honored tradition of inspections will remain in the Navy for the foreseeable future. With time and the positive results associated with the use of TQL, we feel the Navy will eventually move to meet this principle.

We feel further investigation is required to resolve the issue of annual merit ratings since so much of the Navy's promotion and retention system is based solely on individual performance evaluation. The Navy's current policy of "up or out" flies in the face of TQL's stance that all employees who perform within three standard deviations of the mean are acceptable performers. Therefore the changes required for full TQL implementation will have to wait. In the meantime, the Navy should proceed to make changes in the current evaluation forms to include TQL criteria such as teamwork and subordinate development.

The end of awarding contracts to the lowest bidder will require a change in current law. Therefore, a change from this practice, will require a considerable amount of time to pass before it takes place.

TQL encompasses many new and different leadership concepts to the surface warfare community. Equally important, it also utilizes many surface warfare leadership skills and techniques already in place.

We believe that with TQL the Surface Navy will be more efficient and therefore either require less manpower to accomplish its missions, or be able to meet its mission in a better manner. Measurements of this will be less turnover, lower absenteeism, higher productivity as seen in higher rate of successful operational commitments.

# VI. RECOMMENDATIONS

These recommendations are based the results found in our literature review, telephone interviews, and analysis of OSI data. The recommendations are made in two parts. In the first part we discuss the Navy's TQL implementation plan. In the second part we recommend changes to the leadership courses found in the SWO training pipeline to conform with the Navalized TQL principles.

## 1. TQL Implementation

Recommendations are:

The Navy's implementation of TQL should proceed in a slow, methodical manner. This is necessary due to the paradigm change required of the task.

The chain of command, throughout the surface warfare community, should be converted from top to bottom to avoid making subordinate links in the chain of command islands of TQL. This will insure that the ship is supported by the squadron commander, which is supported by the group commander, which is supported by both the operational and administrative chains of command. Similarly, training must continue to be a top-down evolution.

## 2. Leadership Course Improvement

Recommendations are:

The basis of quality in TQL is rooted in SPC. Courses should incorporate statistical analysis techniques that

replace inspections as a means of insuring quality goods and services.

Courses should emphasize subordinate development, particularly in the department head leadership course. The OSI results show this competency to be lacking among mid-grade level officers.

Courses should address lateral interactions within the chain of command. According to the OSI data, peers are an under-used source of information, even though they are a most likely source for junior officers to tap.

Courses should instruct Junior Officers in the importance of giving advice to superiors and receiving advice from subordinates. The chain of command is the information path of an organization. All members of an organization, when their knowledge is shared, can contribute to its successes.

Courses should remove "coercer" and "pacesetter" as acceptable leadership styles. Leaders need to avoid the use of these lesser forms of leadership.

Courses should remove rewards and punishments as a means of motivating workers. Leadership must be substituted in their place.

TQL will better prepare the Surface Navy for future combat missions. It must be understood, though, that this form of management, which emphasizes participative decision making, is not necessarily applicable to all military situations such as combat.

## APPENDIX A

## LIST OF COMMANDS INTERVIEWED

1. Ship's Intermediate Maintenance Activity (SIMA)
   Little Creek, Virginia
2. Naval Aviation Depot (NADEP)
   North Island, California
3. NEMESIS
   Fort Hueneme, California
4. Hull, Maintenance and Electrical (HM & E) Division
   CINCPACFLT
   Pearl Harbor, Hawaii
5. Navy Personnel Research and Development Center (NPRDC)
   San Diego, California
6. Naval Supply Center
   Norfolk, Virginia
7. Fleet Accounting and Disbursing Center, Pacific (FADCPAC)
   San Diego, California
8. McClellan Air Force Base
   Sacramento, California
9. Sacramento Army Depot
   Sacramento, California
10. Naval Supply Center
    San Diego, California

11. Navy Aviation Supply Office
    Philadelphia, Pennsylvania
12. Naval Aviation Depot (NADEP)
    Cherry Point, North Carolina
13. Naval Aviation Depot (NADEP)
    Norfolk, Virginia
14. Naval Aviation Depot (NADEP)
    Alameda, California
15. Chief of Naval Education and Training
    Pensacola, Florida
16. Naval Aviation Depot (NADEP)
    Pensacola, Florida
17. Ship's Intermediate Maintenance Activity
    Little Creek, Virginia
18. Naval Avionics
    Indianapolis, Indiana
19. Naval Supply Center
    Pearl Harbor, Hawaii
20. Norfolk Naval Shipyard
    Norfolk, Virginia

## APPENDIX B

## TELEPHONE INTERVIEW QUESTIONNAIRES

1. Now does TQL fit into overall scheme of things at your command? (Problem solving? Planning? Quality vs. time? Moral? Budget results?)

2. How does TQL add to your problems? (Same as above?)

3. How does/did your command deal with resistance to change?

4. Where does TQL go in your command from here? (Planning? Operations? Away?)

5. Does TQL get full support from within your command? (Above you? Below you? Contemporaries?)

6. Does your command get full support from those outside your command? (Above and below the chain of command? Customers of your command? Suppliers to your command?)

## APPENDIX C

## OSI QUESTIONNAIRES

SECTION C: MANAGEMENT AND PROFESSIONAL RESPONSIBILITIES

1. PLANNING AND SCHEDULING - Developing schedules or work plans (including your own) assigning tasks to workers and specifying goals and completion dates.

A. To what extent is work scheduling a part of your current job?

3. MANPOWER PLANNING - Determining billet or personnel requirements, planning personnel resource utilization, coding billets, maintaining manpower authorization documents and performing other related manpower activities.

A. To what extent is manpower planning a part of your current job?

4. ACTIVITY PLANNING - Planning for the ongoing operation of a program or organizational unit.

A. To what extent is activity planning a part of your current job?

5. PRE-DEPLOYMENT PLANNING - Making necessary arrangements prior to deployment of the operational unit (ship, squadron, submarine, battalion, etc.) to which you are assigned.

A. To what extent is planning for deployments a part of your current job?

6. PLANNING FOR FUTURE DEVELOPMENT - Anticipating requirements and making strategic decisions regarding the future development of a program, project, activity or organizational unit.

A. To what extent is planning for future developments a part of your current job?

7. PROCESSING INFORMATION AND IDEAS - Converting or preparing data for use, utilizing basic information-handling processes. Includes compiling, summarizing, transcribing, classifying, categorizing or coding information (includes hand and computer generated information).

A. To what extent is processing information and ideas a part of your current job?

9. ANALYZING AND SYNTHESIZING INFORMATION AND IDEAS - Breaking down information into facts, principles or assumptions; interpreting the results; and integrating information to establish new facts, hypotheses or theories.

A. To what extent is analyzing and synthesizing information or ideas a part of your current job?

10. JUDGMENTS INVOLVING PEOPLE - Making decisions or assessments about people. This includes superiors, peers and subordinates within your command and those you work with outside your command.

A. To what extent is making judgments involving people a part of your current job?

11. JUDGMENTS INVOLVING OPERATIONS AND OBJECTS - Making decisions or assessments about programs, operation of an organization, facilities or equipment, which do not directly involve decisions about people.

A. To what extent do you make judgments involving operations and objects as part of your current job?

16. SUPERVISING AND DIRECTING - Delineating subordinates' responsibilities and reviewing their work.

A. To what extent is directing or supervising others a part of your current job?

19. COORDINATING - Establishing and sustaining relationships and interchanging information aimed at helping to achieve job objectives.

A. To what extent is coordinating a part of your current job?

20. INTERACTING - Conducting purposeful discussions with others in order to exchange or gather information for a particular reason.

A. To what extent is purposeful interaction with others a part of your current job?

26. USING PROCEDURES, TECHNIQUES OR PROCESSES - Using procedures, techniques or processes in a verbal, mathematical or other systematic approach to a problem or action.

A. To what extent do you use procedures, techniques or processes as part of your current job?

30. INSPECTIONS - Planning, preparing for or participating in inspections (includes follow-up action on inspection results).

A. To what extent are you involved in inspections as part of your current job?

**SECTION D: LEADERSHIP**

1. Estimate the PERCENTAGE OF TIME you spend performing each type of task in your current job. All three tasks must equal 100%.

TECHNICAL TASKS

MANAGEMENT TASKS

LEADERSHIP TASKS

2. Indicate how often you interact with your superiors, peers and subordinates in the performance of your current job.

3. Indicate the importance of the various types of interaction you encounter in your current job.

4. Described below are several job performance characteristics which might be associated with naval officers. Indicate how important how you feel these characteristics are in accomplishing the work you do in your current job.

A. USE OF MULTIPLE INFLUENCE STRATEGIES

B. TEAM BUILDING

C. DEVELOPING SUBORDINATES

D. CONCEPTUALIZATION

E. INITIATIVE

F. PERSISTENCE

## G. POSITIVE AND REALISTIC EXPECTATIONS

Source: Officer Survey Instrument, July 1988 (Extract)

## APPENDIX D

**DEPARTMENT OF THE NAVY**

**OFFICE OF THE CHIEF OF NAVAL OPERATIONS**

**WASHINGTON, D. C. 20350-2000**

Ser00/00500214

13 August 1990

**MEMORANDUM TO ALL FLAG OFFICERS**

Subj: TOTAL QUALITY LEADERSHIP

1. Today's demanding geopolitical and fiscal environments pose unique challenges and offer unique opportunities for the Navy. More than ever, we need to do our jobs efficiently and safely. Flexibility, responsiveness and readiness, our hallmarks, will increasingly characterize naval operations of the future. The growth which characterized the Navy in the Eighties will not continue into the Nineties. While we work to ensure we have the resources available to do the job with an acceptable degree of risk, we will not have the quantities available to us we have had in the past. That is the reality of the Nineties and beyond.

2. We need something to take up the slack, and that something is quality. Combat readiness is the Navy's product,

and that remains the constant in the equation. However, quality will become ever more important as our overall force levels and budgets decline. In business terms, we need to achieve and maintain the superiority of the Navy product and improve it continuously. With your help, I intend to do just that.

3. Slick hype campaigns and catchy slogans are not what I have in mind. Nor do I want to impose another check list or inspection upon our people. Instead, I want us to structure a quietly effective effort to improve quality in the Navy which makes sense to our people, helps them get the job done properly, and helps us all manage our resources better. The Navy is already the leader in applying quality-centered management in the shore establishment. Their approach is called "Total Quality Management," or TQM. This management philosophy, taught in Japan by Dr. W. Edwards Deming, has been credited with many of their revolutionary improvements in quality. I want to continue that initiative ashore and expand it to include Operating Forces. I've decided to call our approach for the Operating Forces "Total Quality Leadership" (TQL) because of the importance of the unique role that Navy leadership plays in developing and implementing our operational objectives. Since TQM is a management philosophy, we will need to adapt its approach and techniques to the Navy

operational environment--its processes, procedures and "products."

4. The message of TQL is revolutionary and its changes what we should expect from ourselves and our people. Its central theme is the need to identify, analyze, improve and redesign the individual processes of our operations in order to improve and redesign the product. TQL's primary thrusts are the continuous improvement of quality, total commitment to meeting the needs of the "customer;" emphasis on improving product quality through improvement of process; and focus on leadership, training and personnel management. In the Navy, the Secretariat is applying these principles to the acquisition process, and numerous Navy shore commands have already adopted its methods with positive results well beyond original expectations. It's time now for us to expand this to the entire Navy, including the Operating Forces.

5. To be effective, we must keep TQL targeted on the practical payoff we expect: continuous improvements in processes to produce continuously improving results. I am convinced TQL can be applied to solve problem areas in ships, squadrons and shore commands and strengthen our overall performance and readiness. By way of example, take a ship in REFTRA which is having problems setting Condition ZEBRA in an acceptable time. Familiar and perhaps typical responses might be come combination of exhortations, threats, blame-laying and

"motivation" through repetitive drilling. Maybe these work, maybe they don't. The problem is that, all too often, no one really sits down to analyze the situation--they just say "fix it." With a TQL approach, emphasis instead would be on analyzing the entire ZEBRA-setting process, reviewing component processes for each repair party and zone, collecting data to identify causes of problems, and then determining ways to solve those problems. Causes might include insufficient manning, poorly identified ZEBRA fittings, unclear assignment of responsibility for specific fittings, inefficient division of effort, improper or insufficient training, inadequate supervision, or poor communications. Once identified, the roots of these problems could be eliminated. The examination of the ZEBRA-setting process would be accomplished not only by officers and chiefs,but would rely on the active participation of the repair parties themselves. Statistical analysis and elementary timing and measuring techniques would be used to help identify and chart the glitches. Most importantly, while the solution that the TQL process produces would be more enduring than recriminations on the 1MC, the effort to improve the setting of ZEBRA would be a continuing one.

6. The most important aspect of the Navy's TQL program is support from the top. I am on board and ready to lead the team effort, and that's where you come in. We need to recognize that this will be a long-term undertaking which will

take years to implement fully. I want to start now. To get the ball rolling, I ask each of you to become familiar with the TQM management approach by reading one or more current books on the subject which may be found in all libraries and book stores. I recommend the following:

(a) The Deming Management Method by Mary Walton

(b) KAIZEN by Magaaki Imai

(c) Out of the Crisis by W. Edwards Deming

I have also enclosed a draft "navalized" version of Dr. Deming's Fourteen Points to get you started on thinking about how we may begin to apply the valuable TQL tool to the Navy. We must continue to refine them as we go about introducing TQL into the Fleet. I intend to discuss a pilot plan for implementing TQL for selected ships, squadrons and shore commands at the Fall CINCs' Conference in October. I am convinced that our emphasis on quality is the right course for the navy as we sail into perhaps the most challenging sea we have yet encountered.

F. B. KELSO, II

Admiral, U.S. Navy

## APPENDIX E

## CHARACTERISTICS OF OUTSTANDING DIVISION OFFICERS

1. TAKES INITIATIVE
   a. Is a self starter; is not overly dependent of CPO
   b. Is an advocate up the chain of command for division's functional needs
   c. Takes risks to gain experience
2. FOLLOWS THROUGH
   a. Persists untIl Job is completed
   b. Monitors progress
   c. Is out and about the work area
3. DEMONSTRATES SELF-CONFIDENCE
   a. Takes a stand when appropriate
   b. Confronts difficult problems
   c. Demonstrates a "can do" attitude
   d. Demonstrates confidence when dealing with seniors and peers
   e. Doesn't worry about being liked
   f. Is not overwhelmed by criticism
   g. Acknowledges when he/she doesn't know the answer
4. SEEKS INFORMATION
   a. Is an active learner; uses many resources
   b. Asks questions
   c. Learns from own mistakes
   d. Refers to studies, regulations and technical manuals

e. Learns where to find information

f. Acknowledges what he/she does not know

g. Determines facts before acting

h. Seeks information from DH and CPO when appropriate

5. PLANS

a. Organizes

b. Prioritizes

c. Anticipates obstacles

d. Sets personal goals

6. MANAGES TIME EFFICIENTLY

a. Balances division and warfare-qualification demands

b. Seeks ways to do tasks efficiently

c. Determines optimal amount of time to devote to tasks

7. ENFORCES HIGH STANDARDS

a. Communicates Navy, command, and divisional standards to enlisted personnel

b. Personally models high standards

c. Monitors

d. Provides constructive feedback

e. Holds division accountable for meeting established standards

f. Encourages high standards through rewards and discipline

8. PROMOTES GOOD WORKING RELATIONSHIPS WITH THE CHIEF

   a. Sets up clear division of duties and responsibilities

   b. Delegates appropriately

   c. Gives and receives necessary information

   d. Works with self-assurance

   e. Assesses and respects Chief'S level of expertise

9. DEMONSTRATES CONCERN FOP OTHERS

   a. Stands up for subordinates

   b. Learns subordinates' capabilities

   c. Makes time for subordinates

   d. Listens to subordinates

   e. Maintains proper DO role in dealing with subordinates

   f. Resolves conflicts between realistic expectations

10. ACCEPTS RESPONSIBILITY

   a. Makes self accountable for division's performance

   b. Demonstrates willingness to make difficult decisions and accepts the consequences

   c. Represents policies passed down from above as his/her own

11. INFLUENCES

   a. Learns and uses idiosyncrasies of the command

   b. Prepares thoroughly in order to persuade

c. Acts as advocate up the chain of command for division's needs

d. Empowers subordinates

e. Demonstrates technical credibility

f. Maintains self-control

12. COMMUNICATES

a. Keeps others informed via the chain of command

b. Demonstrates clear verbal skills

c. Writes clearly and effectively

d. Uses command communication style

e. Interprets nonverbal behavior

13. PROBLEM-SOLVES

a. Sizes up the key aspects of a situation

b. Identifies cause-and-effect relationships

c. Pulls facts together to determine a solution

Source: Student Guide, Naval Leadership Course, SWOSDOC.

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